

CLAIMS

- 1 1. A nitric oxide-stimulation laser comprising:
 - 2 an applicator packet containing at least one predetermined diode chip having
 - 3 a predeterminedly fixed level of emission of infrared light in predetermined
 - 4 wavelengths within a range of 1,300-to-1,600 nanometers for eye-safe and non-
 - 5 invasive use by ordinary users;
 - 6 a duty cycler in electrical communication with a current-input side of the diode
 - 7 chip;
 - 8 the duty cycler having a duty-cycle ratio of twenty-five percent on and seventy-
 - 9 five percent off at a predetermined rate of repetition;
 - 10 a timer having a timer circuit with an automatic shutoff circuit in electrical
 - 11 communication with the duty cycler;
 - 12 an isolated power source having a predeterminedly safe level of electrical
 - 13 power in electrical communication with the timer;
 - 14 a current regulator intermediate the isolated power source and the current-input
 - 15 side of the diode chip;
 - 16 a current conductor for passing a predetermined level of millamps of current
 - 17 from the current regulator through the diode chip during the on cycles of the duty
 - 18 cycler;
 - 19 the diode chip being positioned predeterminedly proximate an inside surface
 - 20 of a proximal side of the applicator packet; and
 - 21 at least one beam processor positioned intermediate a light-emission end of the
 - 22 diode chip and a distal side of the applicator packet for converting astigmatic light
 - 23 beams of the infrared light into designedly collimated light beams and for directing the
 - 24 collimated light beams collinearly for deep penetration into an animate body to

25 stimulate animate generation of nitric oxide effectively for improving animation of the
26 animate body.

1 **2. A nitric oxide-stimulation laser comprising:**

2 the applicator packet containing at least one predetermined diode chip having
3 a manufacturer-preset level of emission of infrared light in predetermined wavelengths
4 within the range of 1,300-to-1,600 nanometers;

5 the duty cycler in electrical communication with the current-input side of the
6 diode chip;

7 the duty cycler having the duty-cycle ratio of twenty-five percent on and
8 seventy-five percent off at the predetermined rate of repetition;

9 the timer having the timer circuit with the automatic shutoff circuit in electrical
10 communication with the duty cycler;

11 the isolated power source that includes a battery having the predeterminedly
12 safe level of electrical power in electrical communication with the timer;

13 a push-button switch for turning power on from the battery to the timer for
14 starting manufacturer-preset timing for automatic shutoff by the automatic shutoff
15 circuit for non-invasive, eye-safe use by ordinary users;

16 the current regulator intermediate the isolated power source and the current-
17 input side of the diode chip;

18 the current conductor for passing the predetermined level of millamps of
19 current from the current regulator through the diode chip during the on cycles of the
20 duty cycler;

21 the diode chip being positioned predeterminedly proximate the inside surface
22 of the proximal side of the applicator packet; and

23 at least one beam processor positioned intermediate the light-emission end of

24 the diode chip and the distal side of the applicator packet for converting astigmatic
25 light beams of the infrared light into designedly collimated light beams and for
26 directing the collimated light beams collinearly for deep penetration into the animate
27 body to stimulate animate generation of nitric oxide effectively for improving
28 animation of the animate body without invasive danger to the ordinary users.

1 **3.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the battery includes a battery that is rechargeable for reliably safe use remotely
3 by the ordinary users.

1 **3.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the predetermined level of milliamps of current is approximately 160 milliamps.

1 **4.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the range of emission of infrared light includes a wavelength of predeterminedly
3 proximate 1,550 nanometers for being Class I eye safe.

1 **5.** The nitric oxide-stimulation laser of claim **4** wherein:
2 the infrared light in wavelengths of predeterminedly proximate 1,550
3 nanometers includes the infrared light in a wavelength within a range of 1,580-to-
4 1,520 nanometers.

1 **6.** The nitric oxide-stimulation laser of claim **4** wherein:
2 the infrared light in wavelengths of predeterminedly proximate 1,550
3 nanometers includes the infrared light in a wavelength within a range of 1,300-to-
4 1,600 nanometers.

1 **7.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the diode chip includes a GaInAsP/InP diode chip.

1 **8.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the timer is articulated for being reset by turning on power to the diode chip
3 manually with the push-button switch for restarting successive operating periods
4 selectively.

1 **9.** The nitric oxide-stimulation laser of claim **8** wherein:
2 the timer includes a timer that is preset for a fifteen-minute operating period.

1 **10.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the timer includes a timer circuit that is articulated for being adjusted for
3 selected operating periods within a predetermined range of time of the operating
4 periods for reliably safe use by predeterminedly knowledgeable and skilled users.

1 **12.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the beam processor includes a predeterminedly positive lens positioned parallel
3 to proximate the distal side of the applicator packet.

1 **13.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the positive lens includes a Fresnel lens.

1 **14.** The nitric oxide-stimulation laser of claim **2** wherein:

2 the applicator packet includes a plurality of the diode chips; and
3 the timer is in electrical communication with the plurality of the diode chips
4 through the current conductor.

1 **15.** The nitric oxide-stimulation laser of claim **14** wherein:
2 the beam collimator includes the Fresnel lens having a focal length of
3 predeterminedly proximate 0.6 inches;
4 the Fresnel lens is affixed to the distal side predeterminedly proximate 0.6
5 inches from the light-emission end of the diode chip; and
6 the Fresnel lens has a lens axis that is predeterminedly collinear to the diode
7 axis.

1 **16.** The nitric oxide-stimulation laser of claim **15** wherein:
2 the beam processor includes a plurality of beam collimators with one beam
3 collimator for each of the plurality of the beams of infrared light for straightening
4 differing angles of the beam divergence of each of the beams of infrared light into
5 parallelism with the diode axis and into perpendicularity to a body part for stimulation
6 with the plurality of the beams of infrared light.

1 **17.** The nitric oxide-stimulation laser of claim **16** wherein:
2 the plurality of the beam collimators includes a plurality of Fresnel lenses with
3 each of the plurality the Fresnel lenses having a focal length of predeterminedly
4 proximate 0.6 inches;
5 the plurality of the Fresnel lenses are affixed to the distal side of the applicator
6 packet predeterminedly proximate 0.6 inches from the light-emission end of the diode
7 chip; and

8 the Fresnel lenses each have a lens axis that is predeterminedly collinear to the
9 diode axis of each of the plurality of the diode chips.

1 **18.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the timer, the duty cycler and the current regulator are positioned on a control
3 board for control communication with one or more chip units which include the diode
4 chip and the beam processor.

1 **19.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the beam processor includes a fiber-optic collimator having a convergence ball
3 intermediate the diode chip and a jacketed glass fiber;
4 the fiber-optic collimator is positioned proximate an inside periphery of the
5 distal side of the applicator packet; and
6 the fiber-optic collimator has an axis that is predeterminedly collinear to the
7 diode axis.

1 **20.** The nitric oxide-stimulation laser of claim **19** wherein:
2 the applicator packet includes a plurality of the chip units of nitric oxide-
3 stimulation lasers having the diode chips with the fiber-optic collimators; and
4 the timer is in electrical communication with the plurality of the chip units.

1 **21.** The nitric oxide-stimulation laser of claim **20** wherein:
2 the plurality of the chip units of nitric oxide-stimulation lasers having the diode
3 chips with the fiber-optic beam collimators are spaced approximately one-quarter-to-
4 three-quarters of an inch apart proximate an insider periphery of the proximal side of
5 the applicator packet;

6 a protective lens is positioned proximate an inside periphery of the distal side
7 of the applicator packet; and

8 the laser source units with the fiber-optic couplers are oriented and positioned
9 to direct collimated light beams through the protective cover.

1 **22.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the applicator packet includes a visual signaler of operating status of the timer.

1 **23.** The nitric oxide-stimulation laser of claim **22** wherein:
2 the visual signaler includes an LED in electrical communication with the timer.

1 **24.** The nitric oxide-stimulation laser of claim **2** wherein:
2 the applicator packet includes an audio signaler of operating status of the timer.

1 **25.** The nitric oxide-stimulation laser of claim **24** wherein:
2 the visual signaler includes an LED in electrical communication with the timer.

1 **26.** A nitric oxide-stimulation laser comprising:
2 the applicator packet containing at least one predetermined diode chip having
3 a manufacturer-preset level of control of emission of infrared light in predetermined
4 wavelengths greater and lesser than the range of 1,300-to-1,600 nanometers
5 selectively;

6 the duty cycler in electrical communication with the current-input side of the
7 diode chip;

8 the duty cycler having the duty-cycle ratio of twenty-five percent on and
9 seventy-five percent off at the predetermined rate of repetition;

10 the timer having the timer circuit with the automatic shutoff circuit in electrical
11 communication with the duty cycler;

12 the timer circuit being a controller for setting operational time periods for
13 automatic shutoff with the automatic shutoff circuit;

14 the wavelengths being controlled automatically in accordance with the
15 manufacturer-preset level of control of emission of infrared light in predetermined
16 wavelengths greater and lesser than the range of 1,300-to-1,600 nanometers;

17 the isolated power source having the predeterminedly safe level of electrical
18 power in electrical communication with the timer;

19 a push-button switch for turning power on from the isolated power source to
20 the timer;

21 the current regulator intermediate the isolated power source and the current-
22 input side of the diode chip;

23 the current conductor for passing the predetermined level of millamps of
24 current from the current regulator through the diode chip during the on cycles of the
25 duty cycler;

26 the predetermined level of millamps of current for being passed from the
27 current regulator through the diode chip during the on cycles of the duty cycler being
28 manufacturer preset in predetermined proportion to the manufacturer-preset level of
29 control of emission of infrared light in wavelengths greater and lesser than the range
30 of 1,300-to-1,600 nanometers;

31 the diode chip being positioned predeterminedly proximate the inside surface
32 of the proximal side of the applicator packet; and

33 at least one beam processor positioned intermediate the light-emission end of
34 the diode chip and the distal side of the applicator packet for converting astigmatic
35 light beams of the infrared light into designedly collimated light beams and for

36 directing the collimated light beams collinearly for deep penetration into the animate
37 body to stimulate animate generation of nitric oxide effectively for improving
38 animation of the animate body without invasive danger to the ordinary users.

1 **27.** The nitric oxide-stimulation laser of claim **26** wherein:
2 the controller for setting operational time periods for automatic shutoff with the
3 automatic shutoff circuit through the timer circuit includes a timer circuit knob.

1 **28.** The nitric oxide-stimulation laser of claim **27** wherein:
2 the timer circuit knob includes a control pointer for indicating rotational
3 positioning in relation to a half-high mark proximate the applicator packet in a time-
4 increase direction of rotation, for indicating rotational positioning in relation to a half-
5 low mark proximate the applicator packet in a time-decrease direction of rotation, and
6 for encountering a controller stop at a maximum of time-increase and time-decrease
7 rotation.

1 **29.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the beam processor includes a predeterminedly positive lens positioned parallel
3 to proximate the distal side of the applicator packet.

1 **30.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the positive lens includes a Fresnel lens **19**.

1 **31.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the applicator packet includes a plurality of the diode chips; and
3 the timer is in electrical communication with the plurality of the diode chips

4 through the current conductor.

1 **32.** The nitric oxide-stimulation laser of claim **31** wherein:

2 the beam collimator includes the Fresnel lens having a focal length of
3 predeterminedly proximate 0.6 inches;

4 the Fresnel lens is affixed to the distal side predeterminedly proximate 0.6
5 inches from the light-emission end of the diode chip; and

6 the Fresnel lens has a lens axis that is predeterminedly collinear to the diode
7 axis.

1 **33.** The nitric oxide-stimulation laser of claim **32** wherein:

2 the beam processor includes a plurality of beam collimators with one beam
3 collimator for each of the plurality of the beams of infrared light for straightening
4 differing angles of the beam divergence of each of the beams of infrared light into
5 parallelism with the diode axis and into perpendicularity to a body part for stimulation
6 with the plurality of the beams of infrared light.

1 **34.** The nitric oxide-stimulation laser of claim **33** wherein:

2 the plurality of the beam collimators includes a plurality of Fresnel lenses with
3 each of the plurality the Fresnel lenses having a focal length of predeterminedly
4 proximate 0.6 inches;

5 the plurality of the Fresnel lenses are affixed to the distal side of the applicator
6 packet predeterminedly proximate 0.6 inches from the light-emission end of the diode
7 chip; and

8 the Fresnel lenses each have a lens axis that is predeterminedly collinear to the
9 diode axis of each of the plurality of the diode chips.

1 **35.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the timer, the duty cycler and the current regulator are positioned on a control
3 board for control communication with one or more laser source units which include
4 the diode chip and the beam processor.

1 **36.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the beam processor includes a fiber-optic coupler having a convergence ball
3 intermediate the diode chip and a jacketed glass fiber;
4 the fiber-optic coupler is positioned proximate an inside periphery of the distal
5 side of the applicator packet; and
6 the fiber-optic coupler has an axis that is predeterminedly collinear to the diode
7 axis.

1 **37.** The nitric oxide-stimulation laser of claim **36** wherein:
2 the applicator packet includes a plurality of the laser source units of nitric
3 oxide-stimulation lasers having the diode chips with the fiber-optic couplers; and
4 the timer is in electrical communication with the plurality of the chip units.

1 **38.** The nitric oxide-stimulation laser of claim **37** wherein:
2 the plurality of the laser source units of nitric oxide-stimulation lasers having
3 the diode chips with the fiber-optic beam couplers are spaced predeterminedly one-
4 quarter-to-one inch apart proximate an insider periphery of the proximal side of the
5 applicator packet;
6 a protective cover is positioned proximate an inside periphery of the distal side
7 of the applicator packet; and

8 the chip units with the fiber-optic couplers are oriented and positioned to direct
9 collimated light beams through the protective cover.

1 **39.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the applicator packet includes a visual signaler of operating status of the timer.

1 **40.** The nitric oxide-stimulation laser of claim **39** wherein:
2 the visual signaler includes an LED in electrical communication with the timer.

1 **41.** The nitric oxide-stimulation laser of claim **28** wherein:
2 the applicator packet includes an audio signaler of operating status of the timer.

1 **42.** The nitric oxide-stimulation laser of claim **41** wherein:
2 the visual signaler includes an LED in electrical communication with the timer.

1 **43.** A method comprising the following steps for using the nitric oxide-
2 stimulation laser of claim **2**:

3 positioning the applicator packet with the beam processor in desired proximity
4 to a desired portion of an animate body;
5 setting the timer;
6 allowing the beam processor to be in the desired proximity to the desired
7 portion of the animate body for a predetermined period of time that the timer is set to
8 operate before being shut off automatically by the automatic-shutoff switch; and
9 removing the beam processor from the desired proximity to the desired portion
of the animate body.

1 **44.** The method claim **43** and further comprising:
2 repositioning the beam processor of the applicator packet on a subsequently
3 desired portion of the animate body;
4 resetting the timer;
5 allowing the beam processor to be in the desired proximity to the subsequently
6 desired portion of the animate body for a predetermined period of time that the timer
7 is reset to operate before being shut off automatically by the automatic-shutoff switch;
8 and
9 removing the beam processor of the applicator packet from the desired
10 proximity to the subsequently desired portion of the animate body repeatedly as
11 desired.

1 **45.** The nitric oxide-stimulation laser of claim **1** and further comprising:
2 an electrical cord from the isolated power source to the control board for
3 communicating current to the timer

1 **46.** The nitric oxide-stimulation laser of claim **2** and further comprising:
2 the electrical cord from the isolated power source to the control board for
3 communicating current to the timer.

1 **47.** The nitric oxide-stimulation laser of claim **26** and further
2 comprising:
3 the electrical cord from the isolated power source to the control board for
4 communicating current to the timer.